# EDGE TEACHER’S GUIDE

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1.0 OVERVIEW

TITLE: Education on Disability and Gender Equity (EDGE)

WEBSITE: http://www.disabledwomen.net/edge/

RESOURCE: EDGE website

TEACHING STYLE: Discussion / debate / oral histories / research

SUMMARY:
The Education on Disability and Gender Equity (EDGE) website introduces students to core high school curriculum concepts using examples that educate and inform them about disability and gender. Through readings, activities, resources, and analysis, students learn new ways of understanding disability and gender constructs and their impact on society.
Education for Disability and Gender Equity (EDGE) is a state-of-the-art research project that designed and developed accessible, multi-media educational materials in humanities and sciences that inform students about disability and gender at the high school level. By providing information about disabled women and men in the context of science, biology, civics, and culture, students can better understand gender differences and disability related diversity. The areas of equity most impacted by this project are: promoting equal access to the sciences and humanities, creation of positive images and knowledge about people who differ by gender, race, disability or other characteristics.

Very little information about girls and women with disabilities is available for use in the curriculum, classrooms or libraries of high schools. This lack of resources creates the impression that women and girls with disabilities do not exist or if they do that...
their accomplishments and lives are unimportant. Disabled boys and non-disabled peers and educators also need this knowledge to reduce stereotyping and improve learning environments.

Although the content of the EDGE materials focuses specifically on gender and disability it represents diversity within its representation. This diversity not only means a range of different occupations and disability types for men and women but also a range of ages, races, and socio-economic statuses. Whether they are reading about an African-American professional baseball player who is deaf or a Hispanic female scientist with a disability, students will begin to see the contributions of people with disabilities within their own communities.

EDGE

Although some high school curriculums make passing mention of disability and gender, EDGE offers a more comprehensive view by using the integrated perspectives of people with and without disabilities. Listening to the voices of people with disabilities, students can see the commonalities of our shared experiences. The voices from our shared past can help us to better articulate current struggles and tensions and thus create a common future.

2.2.1 What is in this Teacher's Guide?
This Teacher's Guide provides tools for using the EDGE website effectively and efficiently. It includes lesson plans, orientation to the site, and suggestions for assisting students in their learning.

2.2.2 Why focus on gender?
Numerous studies show that unless there is a conscious inclusion of both male and female students in curriculum there is a tendency for omission. For example, while we were developing the Physics lesson, we found almost no references or examples that include female students. The overriding presumption was that only male students would be interested in a Physics lesson. Yet the topic of "How wheelchairs work" has been of great interest to both female and male students. At the other end of the spectrum, topics such as "Culture" are often exclude male students. But again our testing showed male students very interested in the topics of media images of people with disabilities.

2.2.3 Why focus on disability?
It is nearly impossible to find any high school curriculum materials that include either disability information or a disability perspective - regardless of curriculum area. We wanted to remedy this by infusing disability into traditional and required curriculum areas. Our testing repeatedly showed that high school students were extremely interested in disability and eager to get additional information.

2.2.4 Why focus on high school curriculum?
Students are required to learn basic concepts in order to succeed in high school. We found that by tying high school curriculum requirements to information about gender and disability that students were enthusiastic to learn new information. Students repeatedly told us that learning the concepts on an interactive website made the information both more interesting and created a greater retention.

2.2.5 Why does EDGE have hands-on activities?
Students in our testing liked having hands-on activities. They told us that they learned
the concepts we were presenting faster and more accurately when they could have an activity environment in which to practice them. They also liked that the answers to the activities were immediately available.

2.2.6 Why does EDGE have People Resources?
In our research teachers and students repeated tell us that there is very little information about people with disabilities. They want to know about people with disabilities, see images of people with disabilities, and get first-hand information from people with disabilities about their lives. Students and teachers also told us that it is very important to have both a wide range of racial groups represented as well as a diversity of disabilities included.

2.2.7 Why does EDGE have Resources for further learning?
We have found that most students have a particular interest or question about people with disabilities. Sometimes it is based on wanting to know more about the disability of someone in their family. Sometimes it is based on an intellectual curiosity. For whatever reason, all the students and teachers told us it was important to have an easy way of finding more information. For this reason, we have included a Resource section within each lesson area as well as an overall Resources section on the main page that includes all the individual Resource lesson areas.

2.2.8 How can the lessons be used?
Since the EDGE is web-based these lessons can be used in a wide variety of ways. Some teachers are using them within the classroom. Other teachers are giving students the option of using EDGE as homework. Still other teachers are encouraging students to use EDGE as a basis for a classroom assignment or for extra credit. Many students are finding the site through our general outreach efforts and are using EDGE to further their personal knowledge. In addition to hot links within the text each lesson also includes a glossary of terms.
3.0 ABOUT THE EDGE WEB SITE

In four web modules, EDGE explores the intersection of disability and gender within science and the humanities. Lessons are presented in a fun and informative multi-media context. Each module teaches a core concept of high school curriculum. These modules can be used either as stand-alone teaching components or within a broader teacher-led unit. Each module has its own Teacher’s Guide section.

Descriptions of EDGE modules:
(modules can be used in any order)

**Physics** - or - How Do Wheelchairs Move on Different Surfaces?
*Learn about the laws of force and motion using wheelchairs.*

**Biology** - or - How Do Different Bodies Work?
*Learn that human bodies can vary either through genetic differences or as the result of a spinal injury.*

**Government**
*Understand how the U.S. government affects the lives of citizens, and how citizens influence the government, through laws such as the 1990 Americans with Disabilities Act.*

**Culture**
*Learn to think critically about gender, media and popular culture, by recognizing common stereotypes about people with disabilities, and by becoming aware of the disability culture movement.*
4.0 USING THE GUIDE

The EDGE Teacher's Guide on the Web is an enhanced version of the print guide. Each module consists of four parts: Lesson, Activity, Self-Test, and Resources.

Lesson
Each lesson addresses two or more curriculum points related to the subject. For example, the *Physics lesson* covers work, energy, momentum, and center of gravity.

Activity
The related Activity section offers at least two different activities that allow students to put the lesson into practice. In the *Biology activity*, students need to find the genetic pattern of inherited deafness.

Self-Test
The Self-Test allows students to review their newfound knowledge. Using a short, multiple-choice format, students answer a question and get immediate feedback. The Self-Test covers the material presented in both the Lesson and Activity.

Resources
The Resource section provides web-based information. Organized into People Resources and Information Resources, it allows students to pursue further learning and significantly expands the breadth of information available.

The EDGE Web site includes a wealth of primary sources, biographies, curriculum links and excerpts from people with disabilities. In addition to the resources for both teachers and students, which are included for each unit, you may find the Resources in each lesson module helpful as well as the Other Helpful Resources section at the end of the Teacher's Guide.

THEMES
The following themes are central to the EDGE website. Each module presents different aspects of these themes within the context of the particular curriculum focus. You may want to explore aspects of these questions as you use the modules in the classroom.

- *Everyone Belongs*: How do our concepts of society change if we presume that everyone belongs as a valued member?
- *Access*: Why is equality of access important for people with disabilities?
- *Difference*: How are people different and the same as each other? How do stereotyped assumptions about differences impact people? How can society value people and their differences?
- *Leadership and Resistance*: How do people with disabilities resist negative connotations of disability?
- *Identity*: How do people with disabilities see themselves? How is this different than prevailing cultural norms about people with disabilities?
- *Citizenship*: What groups of people have full citizenship and who needs to fight for equal rights?

As a general activity before working with the EDGE modules, you may want to survey students’ knowledge of disability. Ask, *What do you know about people with disabilities? Who are famous people with disabilities? What are the cultural values assigned to people with disabilities? Do these change based on the disabled person’s gender or race?* As students work with the EDGE modules, have them write down new
information or facts that support or contradict their answers. Afterward, discuss how students’ knowledge or understanding has changed.

As students gain new perspectives from the EDGE site, you may want to explore the issue of how and why disability has been interpreted -- and often distorted -- over the years. Have students choose a topic from the site and locate information about it from the following sources: a passage in their textbook, a chapter or section in a book by an academic, a selection from a Web site, and a primary source. Add information students may know from novels, movies, television, etc.

Compare and contrast the sources. How are they different? How are they the same? Ask students to analyze how and why various sources present different perspectives. Whose story gets told and why? How does understanding our past influence our ideas and thoughts today?

ACCESS and ACCOMMODATION
If is likely that any given high school class will have students with disabilities in it. You should try to ensure that specific students with disabilities are not expected to teach the rest of the class or expected to be open to personal questions about their lives and disabilities. However, it is rare that a student with a disability sees himself or herself in the work being studied so this is a wonderful opportunity to help a student with a disability connect to a larger community. You might also point out the access features of the course- text only, tags on images and the way that glossaries are used to help with vocabulary. Many of the issues around disability (and gender) are already a natural part of the classroom and the EDGE website is an opportunity to integrate these.
5.1 PHYSICS - or - How do wheelchairs work?

5.1.1 Summary

5.1.2 Resources

5.1.3 Some Notable People

5.1.4 Before Using the Physics Module

5.1.5 After Using the Physics Module

5.1.6 Lesson plan and content

5.1.1 SUMMARY

The goal is for students to apply the basic principles of work, energy, momentum and center of gravity. These basic principles are usually taught using machine images. We have translated them into more gender-friendly examples. We teach these principles and then ask the students to use this knowledge to predict the behavior of different people using different wheelchairs in different environments.

In the activity, students are given three body variables (a man, a woman, and a person without legs (gender ambiguous); four wheelchair variables (front wheel large, front wheel small, back wheel forward position, back wheel back position); and three environments (a bumpy flat surface, up a hill, down a hill). Resource links are provided so that students can continue learning factual information and to read interviews of people of scientists with disabilities and people who use wheeled mobility devices. (Skip to Physics Lesson Plan)

5.1.2 RESOURCES

Interactive Physics

5.1.3 SOME NOTABLE PEOPLE

Ralf Hotchkiss - Engineer/Founder of Whirlwind Wheelchairs
http://whirlwind.sfsu.edu/general_info/news_articles/new_lives/new_lives1.html

Kent Kullers - physicist
http://businessweek.com/bwdaily/dnflash/may2001/nf20010516_176.htm

Rosie Talamantes - Latina Scientist
http://rasem.nmsu.edu/%7Erasem/bios/rtalaman/award.html

Stephen Hawking, Physicist with ALS
http://www.hawking.org.uk/

5.1.4 BEFORE USING THE PHYSICS MODULE

1. Ask students to think about a modern wheelchair. How are its properties similar or different from other forms of self-propelled wheeled mobility (i.e. bicycles, strollers, etc)?
2. Ask students to think about designing a simple wheelchair for a child. What are the physics principles that they would need to know in order to accomplish this? How would they figure out the design specifications?
5.1.5 AFTER USING THE PHYSICS MODULE

1. Have students write about the how their assumptions about wheeled mobility changed after doing the EDGE physics module.
2. Have students create design specifications for a modern wheelchair. Then have them interview people who use wheelchairs. Have them assess their specifications against real-life user perceptions of what is useful in a wheelchair design.

5.1.6 LESSON PLAN AND CONTENT

Work, Energy, Momentum and Center of Gravity are the four main curriculum areas. Although these are usually taught using machines as a base, we have adapted these basic concepts to use human bodies as the base. We help students to explore the ideas of how a body does "work," uses energy and how momentum and the center of gravity intersect with a person using a wheelchair.

Activities

There are three activities that allow students to test wheelchair design in different situations: on a flat surface, uphill, and downhill. Each situation requires a different strategy based on energy, momentum and center of gravity. The students are given three sets of variables: a large or small front wheel; placing the back wheel in a more forward or more backward position; and whether to use a 140 lb woman, a 180 lb man, or a 140 lb double leg amputee (gender not stated).

The advantages and disadvantages of each variable are explained on the opening page of the activity section. Students then make their choices and get immediate feedback about the results of their choices.

Self-Test

In the Self-Test students are able to assess the level of their understanding of both the lesson and the accompanying activities. In seven multiple choice questions students get immediate feedback on their answers.

People Resources

Highlighted in this lesson are physicists and other scientists who have disabilities and are making (or have made) important contributions to the field. Included are Stephen Hawking, Albert Einstein, and Ralf Hotchkiss who designs wheelchair for people in developing countries.

Resources for further learning

Links are provided to other websites that offer further knowledge about the principles presented in the lesson as well as other applications of energy and momentum, such as amusement park rides.

5.2 BIOLOGY - or - How does disability happen?

5.2.1 Summary
5.2.1 SUMMARY
Medicine has a specific role in defining disability in terms of measurable differences from the non-disabled norm. Too often these basic facts are laden with negative values about people whose bodies are different from the norm. The EDGE Biology module uses the factual information about human body differences but puts it into a non-judgmental context. Principles of genetic variation and the biological result of spinal cord injury are taught with the same value as eye color variation.

In the Activity section, students map out the genetic pattern of hereditary deafness. Resource links are provided so that students can continue learning factual information and to read interviews of scientists with disabilities and of people living with these disabilities. (see Lesson Plan Content)

5.2.2 RESOURCES
Genetic Science Learning Center - http://gslc.genetics.utah.edu/

5.2.3 SOME NOTABLE PEOPLE
Michael Ain, M.D. - Surgeon with Dwarfism
http://www.jhu.edu/%7Ejhumag/0499web/ortho.html

Christopher Burke - Actor with Down Syndrome
http://www.arcark.org/drbethinterview.html

5.2.4 BEFORE USING THE BIOLOGY MODULE

1. Have students discuss the following: "If I found out during pregnancy that my baby might have a disability, I would ..." Help the students to identify sources of their opinions - media, medical information, etc. Ask if any of their opinions are based on direct information from people with genetic disabilities.

2. Have the students make a list of disabilities that have a genetic root. Ask them also to identify other traits like height, eye color or hair texture that might have genetic roots. Ask them to identify people who have those disabilities.

5.2.5 AFTER USING THE BIOLOGY MODULE

1. Have the students write about the new information they learned from using the Biology module. Have them include not only facts but also people living with genetic-based disabilities.

2. Have the students interview people living with either a genetic-based disability or a spinal cord injury. What did they learn from their interviews? How did it change their opinions about having those disabilities?

3. Have students contrast the lives of people born with a disability compared to someone who acquired a disability through spinal cord injury - using real life examples from research on the web or interviews.
5.2.6 LESSON PLAN AND CONTENT
This lesson is divided into two sections. The first looks at chromosomes and how
differences in them create different body configurations. In this section we study both
the basics of genetics as well as the implications of genetic difference. In the second
section we explore injuries to the spinal cord and the implications of those injuries.

Activities
In the genetic disorders lesson, the activity is focused on trying to figure out the
pattern of genetic mutation in a family. This activity is offered in three ways: two
"easier, quicker versions" one is graphic based and the other is text based, and a
"more challenging version". This allows a greater variety of students to participate at
their own level. The focus is on trying to solve the genetic pattern in hereditary
defarness within this family.
In the spinal cord lesson, the activity is a roll-over of a spinal cord. For each section
(cervical, thoracic, lumbar and sacral) a description of the implications of injury to that
level is explained.

Self-Test
In the Self-Test students are able to assess the level of their understanding of both
the lesson and the accompanying activities. In eight multiple choice questions
students get immediate feedback on their answers.

People Resources
Within each area there are separate resources. The genetic disorders People
Resources include: general, deafness, Down syndrome, sickle cell, and other genetic
disorders. The spinal cord section includes people with varying levels of spinal cord
injuries as well as some in-utero spinal injuries, such as spina bifida.

Resources for further learning
The genetic disorders Resources include categories for: general, deafness, Down
syndrome, sickle cell, and other genetic disorders. The spinal cord Resources include
information on pain, media, and wheelchair building.
5.3 GOVERNMENT - or - how do laws get enforced?

5.3.1 Summary
5.3.2 Resources
5.3.3 Some Notable People
5.3.4 Before Using the Government Module
5.3.5 After Using the Government Module
5.3.6 Lesson plan and content

5.3.1 SUMMARY
In the United States, achieving full equality under the law is still an ongoing struggle. People with disabilities have often been legally marginalized and sometimes legally excluded. Problems with access to public places, employment and sometimes even marriage were legal barriers. In the Government Module we trace the interaction between government and the rights of people with disabilities, and historical and policy information is addressed through the 1990 Americans with Disabilities Act. (see Lesson Plan Content)

5.3.2 RESOURCES
Myths about the Americans with Disabilities Act
http://www50.pcepd.gov/pcepd/archives/pubs/ek96/lawmyth.htm

Dept of Justice, Americans with Disabilities Act
http://www.usdoj.gov/crt/ada/adahom1.htm

5.3.3 SOME NOTABLE PEOPLE
James Langevin, Congressman

Faces of the ADA
http://www.usdoj.gov/crt/ada/adafaces.htm

5.3.4 BEFORE USING THE GOVERNMENT MODULE

1. Have the students discuss: "What impact does disability have on a society?"
   Focus the discussion on issues related to public access, civil rights and value of different types of people.

2. Have the students investigate the legal and societal situation for people with disabilities in the first half of the 20th century. Has the situation changed today? If so, in what ways?

5.3.5 AFTER USING THE GOVERNMENT MODULE

1. Have the students select a specific area of legally mandated access - such as public places (stores) or telephones or the internet. Have them document the actual level of accessibility. Have them count the number of visibly disabled people that they see in public places on a weekend. If disabled people are at least 10% of any population, where do they think the other disabled people are?
2. Have the students interview people with disabilities in their local area about the role of government in providing equality of access. Also, have students interview people with disabilities about their own personal role in advocating for access or being part of the disability rights movement.

3. Have students consider the similarities between the civil rights movement, the women's suffrage movement and Native Indian self-government movements with the disability rights movements.

5.3.6 LESSON PLAN AND CONTENT
This lesson has three parts: Background of anti-discrimination laws; information about how the Americans with Disabilities Act (ADA) was created and became a law; and how the ADA is enforced.

Activities
This lesson's activity asks students to think about the role of government in people's lives, and about political considerations which guide elected officials voting decisions.

Self-Test
In the Self-Test students are able to assess the level of their understanding of both the lesson and the accompanying activities. In seven multiple choice questions students get immediate feedback on their answers.

People Resources
This section includes a wide range of workers with disabilities including taxi drivers, scientists and artists.

Resources for further learning
With a focus on employment, these Resources provide extensive information about a myriad of pre-employment and employment situations for people with disabilities. It includes: cost analysis for making workplace accommodations; court decisions on disabled people in the workplace; issues facing disabled people of color; and myths about people with disabilities as workers.
5.4 CULTURE - or - Are media images of people with disabilities accurate?

5.4.1 Summary
Perceptions about people with disabilities are the main cause of discriminatory practices against people with disabilities. The historical and cultural roots of conventional media images of people with disabilities are examined in the Culture Module. Examples ranging from historical paintings to current music videos are employed to show a persistent cultural perception. Activities ask students to match favorite people with their disabilities, as well as invent an advertising campaign.

5.4.2 Resources
Disability Studies Quarterly - http://www.cds.hawaii.edu/

Ragged Edge - http://www.ragged-edge-mag.com/

Ragged Edge links - http://www.raggededgemagazine.com/gen/linkgen.htm


Little People of America - http://www.lpaonline.org/

5.4.3 Some Notable People


5.4.4 Before Using the Culture Module
1. Have the students list characteristics that they associate with people with disabilities. Ask them to identify media sources for those beliefs - they can use music videos, books, magazines, films or websites.
2. Have the students list all the famous people that they know are disabled. Discuss why the list is so short. Discuss why people who have disabilities may not be publicly known to be disabled.
3. Have the students list characters from movies or books who have disabilities. Discuss how many of these characters were played by non-disabled actors. In books have students consider if the character was portrayed as a victim, a hero, or a villain.
5.4.5 AFTER USING THE CULTURE MODULE

1. Have the students compare disability-run publications and nondisabled publications - print or online. *What are the similarities and differences of the news coverage of disabled people? How do the issues raised by the EDGE Culture module inform their analyses?*

2. Have the students search teen sites for information about teens with disabilities. *Are the sites accessible to teens who use screen readers (i.e. is there a text option)? Do teens with disabilities participate in these sites?*

3. Have students consider gender issues - are disabilities among women considered worse than disabilities among men? *Do disabled men and women differ in how they react to having a disability? Does society treat these people differently? How and why?*

5.4.6 LESSON PLAN AND CONTENT

After a general introduction to culture and disability, this lesson delves deeply covering stereotyping, disability in the media, disability and art, charity images, telethons, news media, and disability culture. Included are both current images as well as historical, and disabled, figures such as the artist Goya.

**Activities**

Three activities are available for this lesson.  
**Activity 1** asks students to match up the famous celebrity with their disability. This is both a high-interest activity as well as very informative.  
**Activity 2** asks students to examine their attitudes about people with disabilities by asking such questions as: "Can a blind person announce a baseball game?" and "Can a person with cerebral palsy make a movie?"  
**Activity 3** asks students to create an offline fundraising advertisement for "World Wheels." Students are given design guidelines and then asked to evaluate their design based on the disability images represented.

**Self-Test**

This **Self-Test** is the most complex of all the lessons. Students are given four choices to each of the eight questions. It reflects the lessons as well as the activities.

**People Resources**

A wide range of people with disabilities are presented including: Don Wardlow, a baseball announcer who is blind; celebrities with disabilities; as well as athletes, actors and radio hosts.

**Resources for further learning**

Arts organizations, disability culture magazines and media organizations are included here.
6.0 OTHER USEFUL RESOURCES


The Importance of Teaching Children to Celebrate and Value Diversity, Disability World. 2001. http://www.disabilityworld.org/01-02_01/children/diversity.htm


FILMS AND VIDEOS

Films Involving Disability - http://www.disabilityfilms.co.uk


"More than Magoo" - about the Mr Magoo cartoon http://www.raggededgemagazine.com/sep97/media9.htm

The Frontier that Never Ends http://www.raggededgemagazine.com/archive/p20.htm